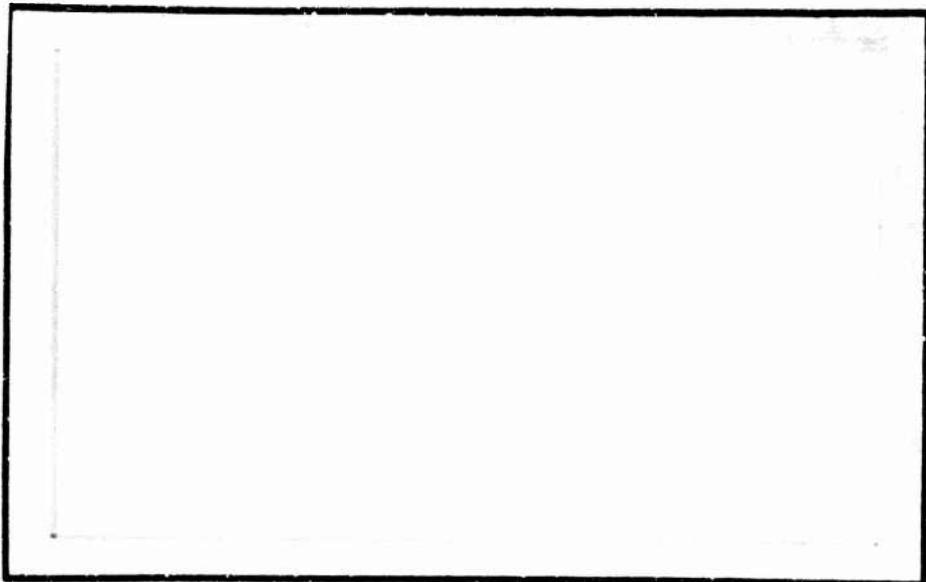


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5. AUTHOR(S) (First name, middle initial, last name) William G. Lange Murray A. Meldrum		
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13. ABSTRACT <p>A triaxial accelerometer system was developed for flight on the Cannon Ball II satellite (OAR 901). This report provides the necessary operating and diagnostic instructions for this research equipment. Included are operation and calibration instructions, interconnection diagrams, logic diagrams, schematics and assembly drawings.</p>		
KEYWORDS: Accelerometer, Acceleration, Triaxial accelerometer,		

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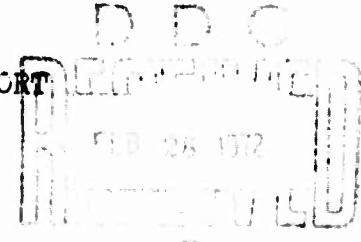
CONTRACT NO. F19628-71-C-0165
(SUB LINE ITEM 0001AE)

REPORT NO. 6098-954002

R & D EQUIPMENT INFORMATION REPORT
3 AXIS ACCELEROMETER (MESA)

FOR
CANNONBALL II

June 15, 1971



CODE IDENTIFICATION 80070

<u>M. G. Lange</u>	<u>6/15/71</u>	<u> </u>	<u> </u>
<u>J. J. Miller</u>	<u> </u>	<u> </u>	<u> </u>
<u> </u>	<u> </u>	<u> </u>	<u> </u>
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DATE	ISSUE	PAGE NO. AFFECTED	AUTHORITY

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I. PURPOSE OF EQUIPMENT

The triaxial accelerometer is intended to measure extremely small forces along three mutually perpendicular axes when mounted in the Cannonball II satellite. Each axis will sense in two directions, normally referred to as plus and minus accelerations. The output signal from each axis is presented in both analog and digital form.

II. THEORY OF OPERATION

The tri-axial accelerometer for the Cannonball II satellite is identified as Bell Aerospace Company (BAC) part number 6176-300001.

In order to identify each component and its interconnections, reference should be made to BAC Drawing number 6176-300001. This drawing shows that each system is made up of 5 units and 6 interconnecting cables. The parts list identifies each piece by part number and title. All BAC drawings appearing on this parts list are included in the drawing folder.

The direction of the three axes are marked on the outside of the instrument package. Motion of the case along any one of these axis will cause the output signal to appear. Since these accelerometers are scaled to measure forces in the micro-g and milli-g region, they present special problems in handling and calibration when exposed to the one -g environment existing on the earth.

The nominal full scale ranges are listed below. Along with each is the maximum angle by which the sensitive axis may be tilted from horizontal without exceeding the range.

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	\pm Input g's	Tilt Angle
Range A	1.2×10^{-2}	41'-20"
Range B	$7 \times 10^{-4} g$	2'-25"
Range C	$1.6 \times 10^{-5} g$	3.3"

A glance at this list shows that even on the least sensitive scale (Range A) the sensitive axis must be horizontal to within 3/4 degree in order to stay on scale.

The output of each channel is proportional to input acceleration and is available in both digital and analog form.

The analog output appears as a zero to 5 volt d-c signal. It derived from the digital signal and its magnitude is proportional to the pulse output rate representing input acceleration. The same pulse rate and d-c output represent full scale on each range.

Typical values are as shown below:

<u>Input Full Scale</u>	<u>Analog Output (Volts)</u>	<u>Digital Output Pulses/Second</u>
0	.15	0
20%	1.0	1000
40%	2.0	2000
60%	2.8	3000
80%	3.7	4000
100%	4.5	5000

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III. BENCH TESTS

Preliminary

Interconnect the system as shown on BAC drawing No. 6176-300001. Observe that power switches on the test set are in the following positions. Test set power - OFF, DC supply to - INT., System Power - OFF. Connect the test set power cord to any 115V - 60 cycle outlet. Disable channels X and Y by disconnecting both P3 (cable W2) plugs from the interface unit. Make sure that the 3 Axis instrument package is resting on a fairly stable flat surface and is level to within $\frac{1}{2}$ degree. Turn the test set power - ON, and observe the system voltage meter indicates approximately 28 volts dc, and system current is zero. Place all three meter switches on INT.

Z Channel Tests

Place Z channel meter switch in analog output position. Turn system power - ON and observe that system current meter reads about 0.2 amps. Place both cross axis and sensitive axis range T/M meter selector switches in their A positions. Depress and hold the suspension command switch for approximately $\frac{1}{2}$ second. Repeat until cross axis meter indicates about 40 micro amps (4 T/M volts). Depress and hold the sensitive axis command switch for approximately 1 second. Repeat until sensitive axis command meter indicates about 40 micro amps (4 T/M volts). Observe the Z channel float position meter while very gently tilting the Z axis back and forth through horizontal. The float position meter should follow by alternately going from 0 to 50 micro amps. This indicates proper suspension of the proof mass in the accelerometer. Rest the three axis package flat on the table and observe if analog output is less than 50 micro amps. If not, tilt

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Z axis and shim appropriate end to give an on scale reading. Very slight adjustments in the tilt should now cause the analog output to vary between 0 and 5VDC. Tilting the base to reduce the analog output will cause the float position meter to go to approximately 25 micro amps (2.5 T/M volts) when the analog output is minimum. This is the null' or zero g input condition. As long as the analog output is less than 50 micro amps, the float position meter will indicate a fairly steady value of either 10 or 40 micro amps depending on the polarity of the input g's.

Switch the meter selector switch to ELECT. TEMP and note the reading. At room temperature this should indicate approximately 20 micro amps. (2 T/N volts). Switch the meter selector to ACCEL-TEMP. The reading should again be approximately 20 micro amps.

Overrange Circuit Test

Place the sensitive axis command meter in position B and depress the range command observing that meter reads about 40 micro amps. Tilt the sensitive axis to cause the analog output to saturate at 50 micro amps; this activates the overrange circuit. The analog output should now drop to near zero for about 20 seconds, then return momentarily (2 seconds) to 50 micro amps, and then back to near zero. Switch the command meter selector switch back to A and depress the sensitive axis command two times. The meter should again read 40 micro amps and the analog output should be near zero. This completes bench test of the Z channel. Turn system power - OFF and proceed to the Y channel tests.

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Page 5
Report 6098-954002Sue _____ Date 6/15/71Y Channel Tests

Connect P3 (cable W2) to J3, channel Y, on the signal conditioner. Place Y channel meter switch in analog output position. Turn system power ON and observe that system current increases to about 0.4 amps. Note that both Sensitive Axis and Cross Axis command meters indicate about 40 micro amps corresponding to Range A. Observe the Y channel float position meter while gently tilting the Y axis back and forth through horizontal. The float position meter should follow by alternately going from 0 to 50 micro amps, indicating suspension of the Y accelerometer. Rest the three axis package flat on the table and observe if analog output is less than 50 micro amps. If not, tilt and shim appropriate mounting lug to obtain an on scale reading. The indications of float position and analog output should be the same as described for the Z channel. Check the Elect. and Accel. Temp readings by means of the selector switch. The readings should be approximately 20 micro amps at room temperature.

Overrange Circuit Test

Place the sensitive axis command meter in position B and depress the range command observing that meter reads about 40 micro amps. Tilt the sensitive axis to cause the analog output to saturate at 50 micro amps; this activates the overrange circuit. The analog output should now drop to near zero for about 20 seconds, then return momentarily (2 seconds) to 50 micro amps, and then back to near zero. Switch the command meter selector switch back to A and depress the sensitive axis command two times. The meter should again read 40 micro amps and the analog output should be near zero. This completes bench test of the Y channel. Turn system power - OFF and proceed to check the X channel.

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X Channel Tests

Connect P3 (cable W2) to J3 channel X on the signal conditioner. Place X channel meter switch in the analog output position. Turn system power - ON and observe that system current increases to about 0.6 amps. Note that both command indicators read about 40 micro amps corresponding to Range A. Observe the X channel float position meter while gently tilting the X axis back and forth through horizontal. Note that the Z axis mount must be turned on its side in order to get the X axis horizontal. Continue tests on X channel as described for Y channel above. This completes the X channel tests. Turn system power - OFF and place the three axis package on its three mounting pads.

Command Tests

Turn system power - ON and observe that both command meters indicate about 40 micro amps (4 T/M volts = Range A). Depress the suspension command, hold for 1 second and release. The cross axis meter should go to about 2 micro amps (0 T/M volts). Switch the cross axis meter selector switch to B; meter should again read 40 micro amps. Depress sensitive axis command, hold for 1 second and release. The sensitive axis meter should go to about 2 micro amps (0 T/M volts). Switch sensitive axis meter selector switch to B; meter should again read 40 micro amps. Turn system power switch - OFF. Leave off for about 5 seconds. Turn system power - ON and note that both command meters read about 40 micro amps. Depress each switch, hold for 1 second and release. Switch both meter selectors to C range. Both meters should indicate about 40 micro amps. Turn system power - OFF for 5 seconds and then ON again. Command meters should again read about 40 micro amps. Depress each command switch, hold for 1 second and release. Both command meters should indicate about 20 micro amps (0 T/M volts). Switch both meter selectors to the A range. Both

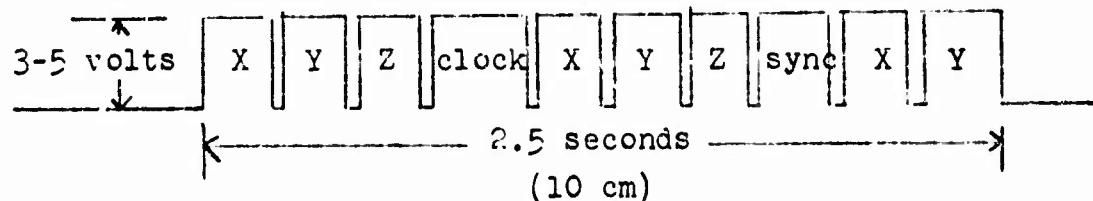
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should indicate 40 micro amps. This completes the command tests

Digital Signal Conditioner Tests

Connect an oscilloscope to either the bnc connector or the binding posts labeled "digital output." Set the scope time base to about 250 msec/cm (assuming a 10 cm viewing area). Sync the scope sweep generator and observe the presence of the channel words, sync word, and clock word as shown below. Note that the amplitude of the output pulse train is +4 ±1 volt.



IV. INSTALLATION TESTS

Install each of the five units which make up the system in their respective places in the satellite. Connect cables W1, and W2. Make sure that all units of a particular channel are mated to the connectors with that channel marking. Connect test cable to J5 on the interface unit. Temporarily disconnect P3 channels Y and Z. Connect the test set to 115V - 60 cycle power. Turn test set power - ON. Voltage should be 28V. Turn all meter switches to INT., and all meter selector switches to analog output. Turn system power - ON and check each channel using the same procedure as described in the bench tests. In this case, however, it will be necessary to have the satellite mounted in a manner that will enable each of the three axis to be tilted through horizontal and held there to within $\pm \frac{1}{2}$ degree. Perform the Command and

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Digital Signal Conditioner Tests as described in the Bench tests. Turn system power - OFF. Turn Test Set power - OFF. Remove Test Set Cable and disconnect power cord to test set. This completes installation tests. The system may now be connected to the various satellite systems by way of J5 on the signal conditioner.

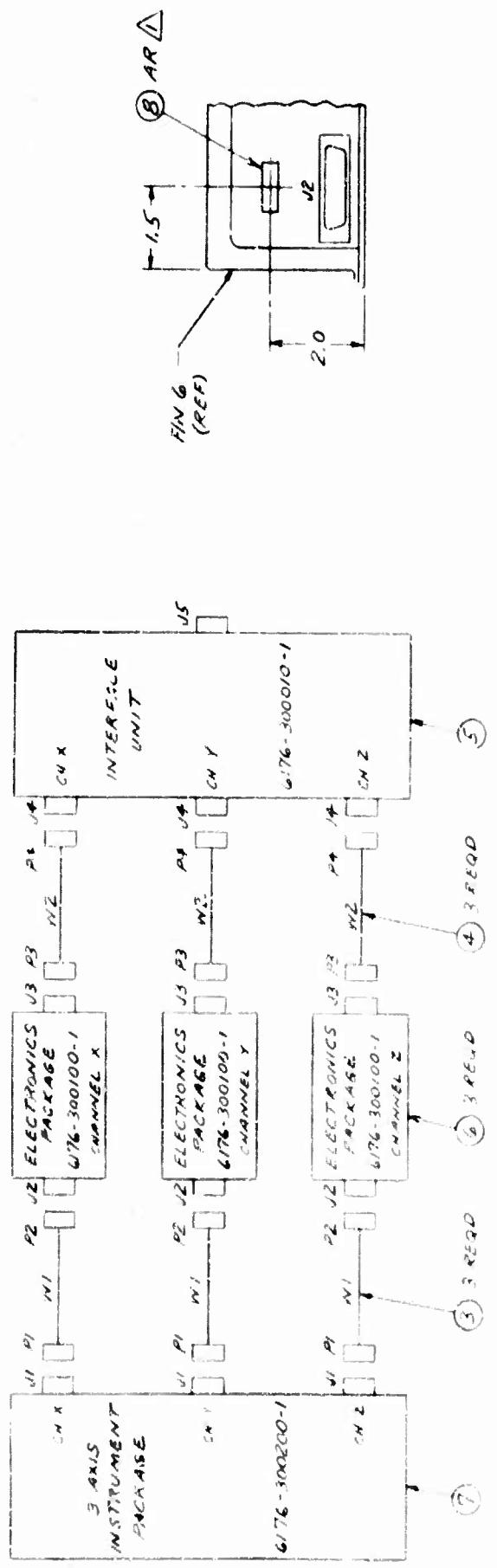
V. SATELLITE TESTS

Connect the system to the satellite power, telemetry, and command systems by means of J5 on the signal conditioner. Apply power to the system and command both Sensitive and Cross Axis into Range A. Again the satellite must be horizontal to within $\frac{1}{2}$ degree. Perform the check of each channel as described in the bench tests. Perform the Command and Digital Signal Conditioner tests also as described in the bench tests. This time the voltages will have to be read at the output of the telemetry. This completes the satellite tests.

VI. CHANNEL REPLACEMENT

In the event a channel becomes defective either due to a faulty accelerometer or electronics, both units must be replaced. Remove the three axis instrument package, the defective channel electronics, and the interface unit from the satellite. All three packages, plus the associated W1 and W2 cables should be returned to the manufacturer (Bell Aerospace Company) for repair.

ZONE	REFLN	DESCRIPTION	DATE APPROVED
1			
2			
3			



10000E-2119

PART NO.	QTY	DESCRIPTION	DRAWING OR SPECIFICATION	REV STATUS	
				REFL	IN OF SHEET
AC 5 11224 3/8" SOLID BACK EMBOSSED TAPE	1		6176-300200-1 3 AXIS INSTRUMENT PKG		
1 7 6176-300200-1 3 AXIS INSTRUMENT PKG	1		100-1 ELECTRONICS PKG		
3 6 100-1 INTERFACE UNIT	1		110-1 INTERFACE UNIT		
1 5 006-1 CABLE W2	1		006-1 CABLE W1		
3 3 005-1 CABLE W1	1		002-1 INTERFACE CABLE DIAGRAM		
1 2 002-1 SYSTEM	1		6176-3000010-1 SYSTEM		
-/- FWD CODE NO IDENTIFYING NO			MATERIAL OR NOTE	DIA THICK NO LG TS MM ZIN FZ	
QTY RECD			REV STATUS	IN OF SHEET	

PARTS LIST

UNLESS OTHERWISE SPECIFIED DIM H AND 2.14 IN

HOLE TOLERANCES DIA .005 IN & 1.000 ±.001 INCHES

EXCEPT AS SHOWN IN MM & MM & IN INCHES

91310 .000	.000 - .001	X	XX	ANGLES	LND SP
.000 TO .010	.005 (.01)	.1	.03	.010	.10 .30
.120 TO .200	.005 -.001				
20170 .000	.000 -.001				
48410 .750	.010 -.001				
48410 .000	.010 -.001				
6176-9128001	.010 -.001				
NUMBER APPLICATION			APPLICATIO	NO	QTY REQD

BELL AEROSYSTEMS COMPANY
100-1 100-1 100-1 100-1 100-1 100-1
BELL AEROSYSTEMS COMPANY 100-1 100-1 100-1 100-1 100-1
BELL AEROSYSTEMS COMPANY 100-1 100-1 100-1 100-1 100-1

TEST EQUIPMENT (1, 2, or 3) AT TIME OF
TEST Channel 1 (1, 2, or 3) AT TIME OF
TEST TEST EQUIPMENT (1, 2, or 3)

VISITEST

3. 10000E-2119

THREE AXIS MINIATURE ELECTROSTATIC ACCELEROMETER (MEAS) SYSTEM

SIZE CODE IDENT NO DRAWING NO
C 80070 6176-300001

SCALE NAME

3 AXIS
INSTRUMENT
PACKAGE
6176-300200-1

6176-300200-1

(W.) 6176-300005-1 CABLE ASSY

OUTER SHIELD

18	18	PICK OFF EXCITATION	25	25
6	6	PICK OFF EXCITATION RET	13	13
16	16	PICK OFF SIGNAL	9	9
4	4	PICK OFF SIGNAL RET	5	5
5	5	ACCEL A0	12	12
17	17	ACCEL B	7	7
9	9	SUSPENSION RET	8	8
21	21	SUSPENSION TA	20	20
22	22	SUSPENSION TB	21	21
3	3	ACCEL TEMP MON RET	18	18
1	1	ACCEL TEMP MON	6	6
4	14	N PULSES	4	4
25	25	16 PULSES	11	11
13	13	16 PULSES	10	10
24	24	16 PULSES	24	24
18	18	PIRCE RET	23	23
11	11		22	22

(M) LENGTHS NMR 1 A 23

1. 68.00 NMR 1 A 23

2. 62.00 NMR 1 A 23 (2)

3. 62.50 NMR 1 A 23 (2)

ELECTRONIC
PACKAGE

6176-300100-1

19	19	SUSP
20	20	SUSP
21	21	SUSP
9	9	CONSTRA
6	6	CONSTRA
17	17	CONSTRA
3	3	CMD
22	22	PO GAIN CMDO
25	25	PICK OFF S
13	13	OVERR
24	24	ACCL
7	7	ELBO
4	4	
15	15	6 PULSE
14	14	TELE
8	8	CHASS
1	1	128
2	2	+288
5	5	58
11	11	58
2	2	ADAT R
16	16	ANAL
10	10	16 SUSP
23	23	

(P3) DBM255-A

(U3) DBM25P NMR

DBM

NOT USED IN SATELLITE CABLE

NOTES

11

ED NO.	SP NO.	RUBBER
ED 12	SP 12	APPLICABLE

REVISIONS		
DATE	APPROVED	REMARKS
10-12-70 26 JUN 1970	REJ-1000	A CHANGED IN 2000 CABLE AT PINS 10, 12, 16, 18, 20, 22, 24 & 26. PIN 10 AND 20 WAS 0.0625 ENCLOSED. PIN 12, 16, 18 & 24 ARE 0.0625 UNENCLOSED. CANCELLED IN 1000

(WZ) 6176-300006-1 CABLE ASSY

OUTER SHIELD

19	19	SUSPENSION CMD A	19	19
20	20	SUSPENSION CMD B	20	20
21	21	SUSPENSION CMD C	21	21
5	5	CONSTRAINTMENT CMD A	5	5
6	6	CONSTRAINTMENT CMD B	6	6
17	17	CONSTRAINTMENT CMD C	17	17
3	3	CMD SIGNAL RET	3	3
22	22	POL GAIN CMD(CONST RANGES 4-5%)	22	22
25	25	ACCR OFR SIG (FLOAT POSITION)	25	25
13	13	OVERRANGE SIGNAL	13	13
29	29	ACCEL TEMP	29	29
7	7	ELECT TEMP	7	7
18	18	6 PULSES	18	18
4	4	6 POLARITY	4	4
15	15	6 PULSE & POLARITY RET	15	15
14	14	TELEM RET	14	14
8	8	CHASSIS GROUND	8	8
1	1	+28V POWER	1	1
2	2	+28V POWER RET	2	2
5	5	SPARE	5	5
11	11	SPARE	11	11
16	12	FLOAT POSITION MON TIM	10	10
16	16	ANALOG OUTPUT	16	16
10	10	16 SUSPENSION TEST	12	12
2	23		23	23

INTERFACE UNIT		6176-300010-1	
1	1	128V POWER	2
2	2	+28V POWER	RET
3	3	-28V POWER	RET
4	4	A/D LOGIC	X
48	48	CONSTRAINTMENT CMD	
22	22	CONSTRAINTMENT CMD RET	
24	24	SUSPENSION CMD	
25	25	SUSPENSION CMD RET	
28	78	CONST RANGE A TIM	
27	27	CONST RANGE A TIM	
26	26	CONST RANGE C TIM	
17	17	SUSP RANGE A TIM	
18	18	SUSP RANGE B TIM	
19	19	SUSP RANGE C TIM	
20	20	RANGE TIM RET	
7	7	DATA RETURN	
5	5	DATA OUTPUT	
6	6	SHIFT PULSE	
49	49	ANALOG INPUT Y	
36	36	CHASSIS GROUND	
50	50	ANALOG INPUT B	
37	37	16 TEST	
21	21	SPARE IN	
38	40	FLOAT POSITION MON 1 TIM	
39	39	FLOAT POSITION MON 2 TIM	
40	40	ACCEL TEMP 1 TIM	
41	41	ACCEL TEMP 2 TIM	
42	42	ACCEL TEMP 3 TIM	
43	43	ELECT TEMP 1 TIM	
44	44	ELECT TEMP 2 TIM	
45	45	ELECT TEMP 3 TIM	
46	46	BT MONITOR TEST ONLY	△
47	47	CLOCK RET	
10	16	CLOCK LSO (1 SEC)	
5	15	CLOCK BIT 2	
14	14	CLOCK BIT 3	
13	13	CLOCK BIT 4	
12	12	CLOCK BIT 5	
11	11	CLOCK BIT 6	
10	10	CLOCK BIT 7	
9	9	CLOCK BIT 8	
8	8	CLOCK BIT 9	
29	4	CLOCK BIT 10	
20	30	CLOCK BIT 11	
3	31	CLOCK BIT 12	
32	32	CLOCK BIT 13	
33	33	CLOCK BIT 14	
34	34	CLOCK BIT 15	
35	35		

(PS) DOM-505 NMB-1-A123

(W5) DOM-505 NMB-1-A123

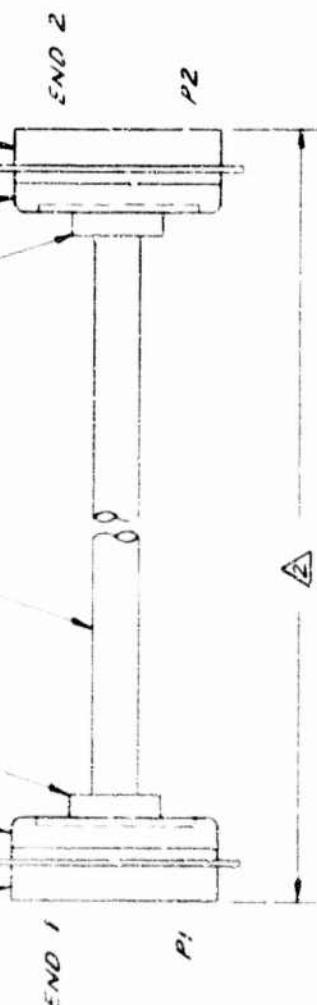
PARTS LIST	DESCRIPTION	MATERIAL	COMMERCIAL	SPECIFICATION	QUANTITY	REF.
						OTC NO.

FREIGHT TO FOB, EXCL TAXES

BELL SYSTEMS COMPANY
A TELECOM COMPANY
POST OFFICE BOX 1000 BETHLEHEM, PA 18020
INTERCONNECTING CABLE
DIAGRAM: 3 AXIS MESA
SYSTEM (COB II)

6176-300002

REVISIONS	ZCMELTR	DESCRIPTION	DATE APPROVED
1			
2			
3			
4			
5			
6			
7			



C

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12

500005-9/17

LENTH TO BE DETERMINED AT FIRST INSTALLATION
SPECIFICATION IN ACCORDANCE WITH GOSB. 300.059
NOTES:

PARTS LIST

ITEM NO.	DESCRIPTION	QUANTITY	MATERIAL OF PLATE	INV. NO.
1	INTERCONNECTING CABLE	1	STAINLESS STEEL	C 80070
2	CONNECTOR	1	ALUMINUM	C 676-300.059
3	ROPE	1	STEEL	500005
4	SCREW	1	ALUMINUM	C 80070

ITEM NO.	DESCRIPTION	QUANTITY	MATERIAL OF PLATE	INV. NO.
1	WIRE LIST	1	STAINLESS STEEL	C 80070
2	SOLDER	1	LEAD	49-5-571
3	WIRES	1	NICKEL	49-4-40
4	WIRES	1	NICKEL	49-4-40
5	WIRES	1	NICKEL	49-4-40
6	WIRES	1	NICKEL	49-4-40
7	WIRE LIST	1	STAINLESS STEEL	C 80070
8	WIRE	1	NICKEL	49-4-40
9	WIRE	1	NICKEL	49-4-40

1

1

1

1

1

1

1

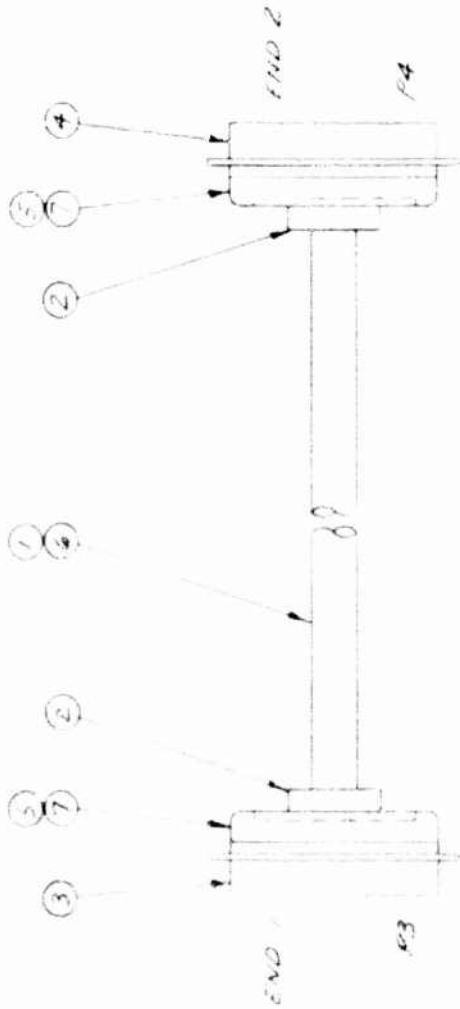
1

1

1

1

REVITIONS		DESCRIPTION	DATE APPROVED
NONE		A1 CHANGED NOTE 3 MASS PLATE TO HOLD SET NEEZS 15 EPD PINTO PAW	9/25 1970



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30000E-9619

B

9

B

*NOTE: THIS IS THE DESIGN OF THE CONNECTING CABLE.
THIS DESIGN IS NOT FOR USE AS A CONNECTOR
BUT AS A CONNECTING CABLE AT CAPSTAN POSITION
AS SHOWN IN FIGURE 15.11.89.*

NOTES

A

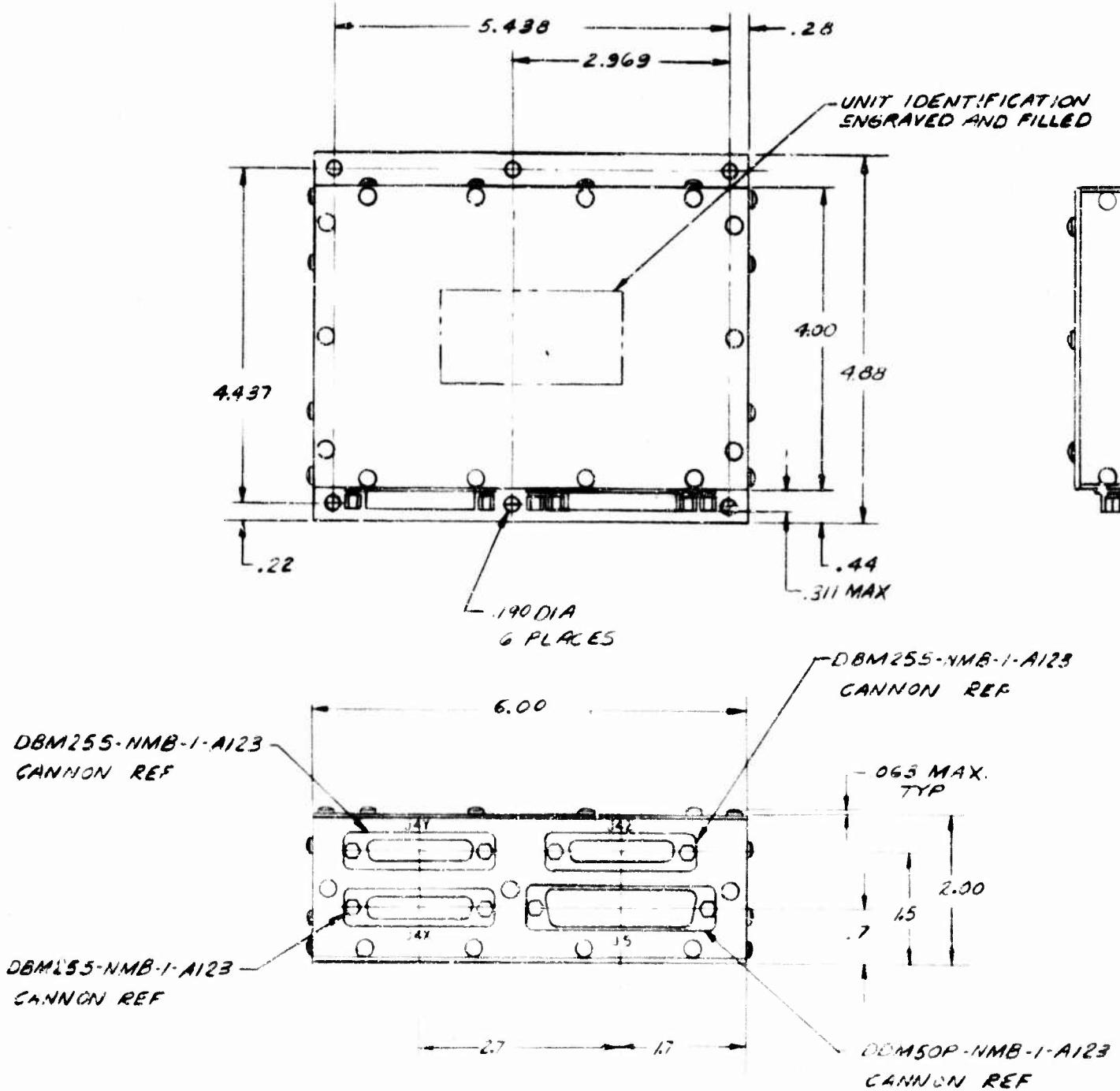
PART NO.	QTY	DECR.	IDENTIFY	DRAWING OR SPECIFICATION	MATERIAL OR NOTE	DIA THK WD LG TS 1000 ZONE	REV STATUS	
							REV OF SHEET	REV
1	1	1						
2	1	2						
3	1	3						
4	1	4						
5	1	5						
6	1	6						
7	1	7						
8	1	8						

NUMBER	APPLICATION	CASH	NEUT. 25%	SECTION	APPLICATN	QTY NEEDED	NOT TO COMPARE		
							END 1	END 2	END 3
1146 50018.9	4 END 4.46	1	1	1/8	30000E-1	1	0	0	0

BELL AEROSYSTEMS COMPANY	
MILITARY, MILITARY, COMMERCIAL, INDUSTRIAL, AND AIRPORT	PLANE DIVISION
PO BOX 1000 NEW YORK, NY 10016	
INTERCONNECTING CABLE	DIVISION OF BELL AEROSYSTEMS CORPORATION
AIRCRAFT INTERFACE	
W2	
SIZE CODE IDENT NO DRAWING NO	
C 80070	6176 - 30000E
SCALE NO/NC	SHEET

HOLES TOLERANCES EXCEPT AS SHOWN	SPECIFIED DIMENSIONS ARE IN INCHES TOLERANCES IN DECIMALS	DRAW A TOP SURFACE		DRAW B SIDE SURFACE		DRAW C TOP SURFACE		DRAW D SIDE SURFACE	
		LEN	WID	LEN	WID	LEN	WID	LEN	WID
.013 TO .020	+.004 .001								
.040 TO .070	-.005 .001								
.130 TO .200	-.006 .001								
.250 TO .400	-.007 .001								
.400 TO .750	-.010 .001								
.750 TO .900	-.010 .001								
.900 TO 1.100	-.010 .001								
1.100 TO 1.350	-.010 .001								

APPENDIX B
SPECIFICATIONS



4 PROTECTIVE FINISH IRIDIUM, YELLOW PER
MIL-C-5541, TYPE I, GRADE C, CLASS 3

A TOLERANCES .XX-.020
.XXX-.005

A SEE SPECIFICATION E176-947 C10 FOR REQUIREMENTS

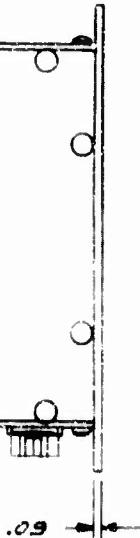
A PURCHASE FROM ADCOLE CORP., 330 BEAR HILL RD.
WALTHAM, MASS. CODE IDENT. 18150 THEIR PART NO 15294

NOTES

14

ED. NO.	REF. NO.	NUMBER	APPLICATION
18 TO COMPLETE PRINT			APPLICABLE SPECIFICATIONS

LTB	DATE
A	REDRAGIN MFG CO APCO SYSTEMS GEN. NOTES



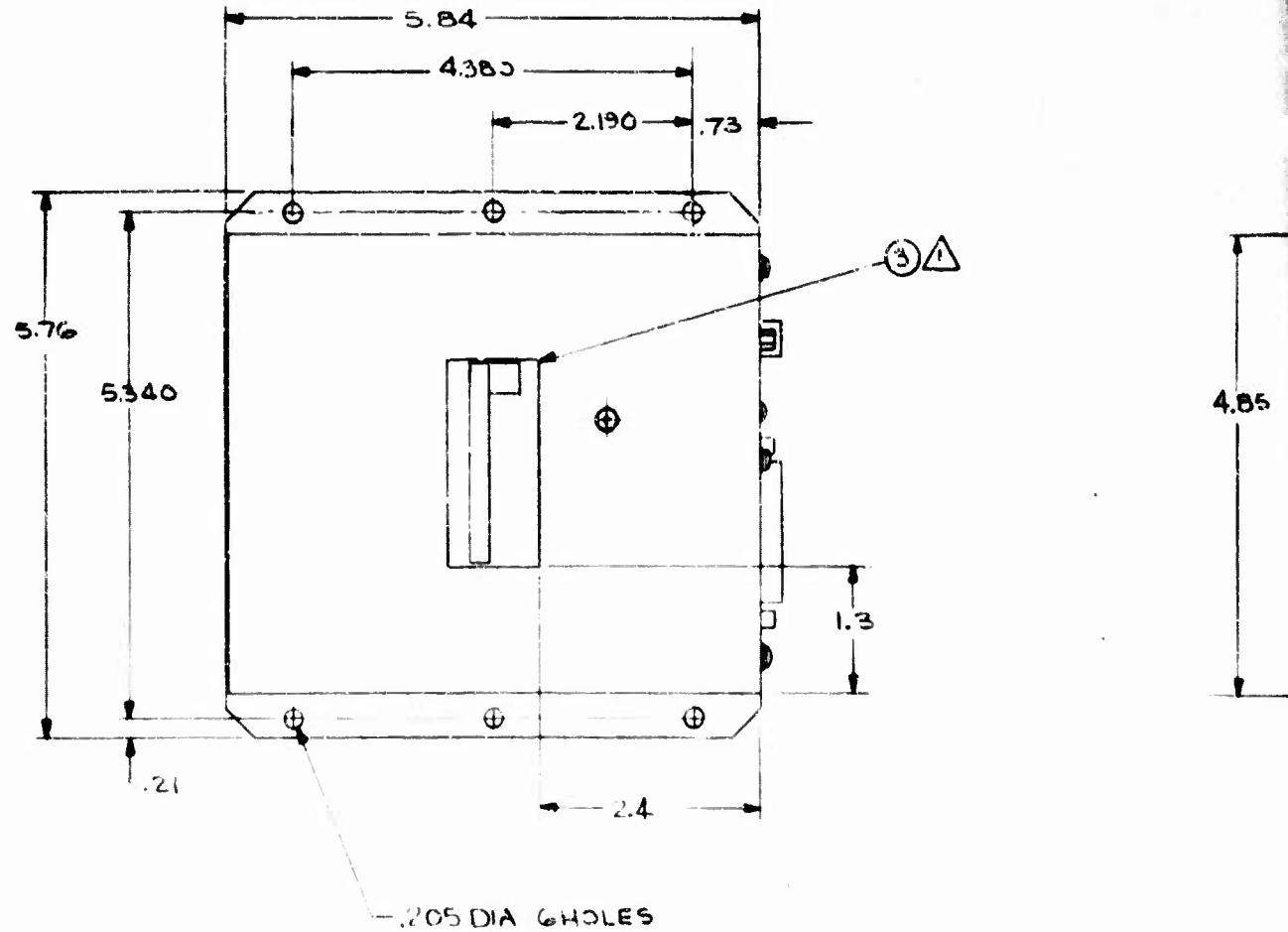
Reproduced from
best available copy.

PARTS LIST							
	FIND NO	CODE IDENT	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	MATERIAL OR NOTE	COMMERCIAL DESIGNATION	SPECIFICATION
			6176-300010-1	INTERFACE UNIT A			

FINISH SPEC	6176-300010-1	NEXT ASSY	USED ON	NEXT FINAL ASSY	DASH NO	APPLICATION	QTY REQD	HOLE TOLERANCES EXCEPT AS SHOWN		UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES. TOLERANCES ON DECIMALS		ONION 7/16-20 UNF GROUP 1A APPROV'D NOV 1971 BY WT CWECK 3 DRC/HW/ABR/EM STRESS REL A APPROV'D 12-6-69 CONTRACT NO.	INTERFACE UNIT C02 II
								640 TO 120 + .004 - .004	130 TO 250 + .004 - .004	260 TO 400 + .004 - .004	400 TO 750 + .010 - .004		

6176-300010-1
W/CHEK
6-22-69

DATE CODE IDENT NO.
0 80070 6176-300010
PAGE 10 OF 10



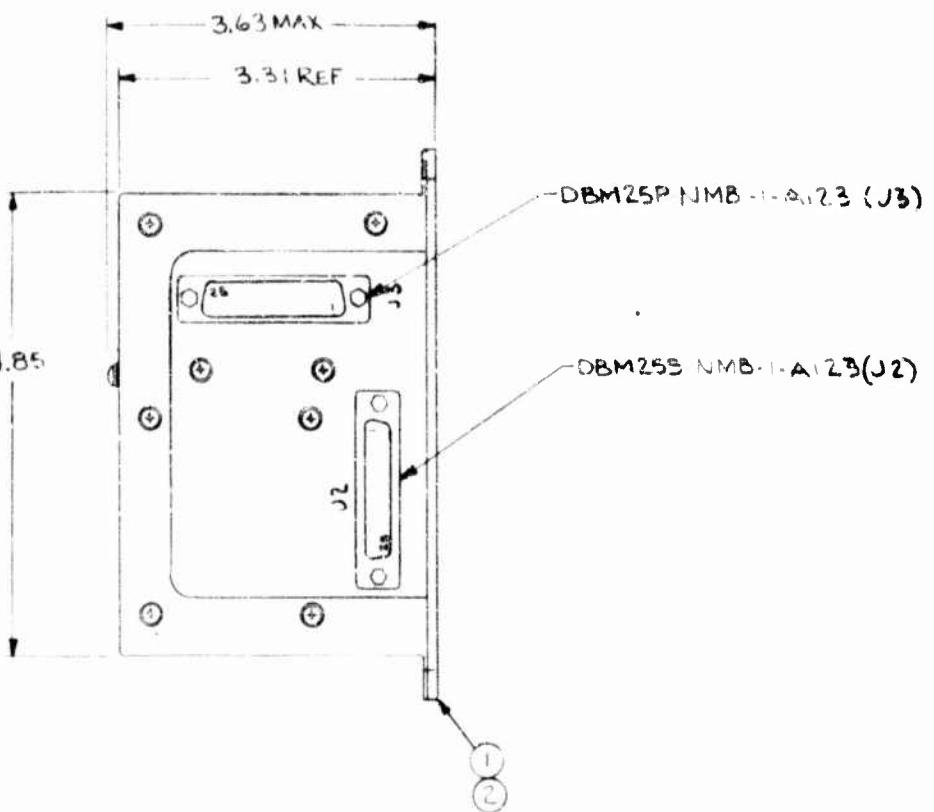
⚠ APPLY PER BPS 4168

NOTES:

15

EO NO.	SR OF SW	NUMBER	APPLICATION	DATE
EO TO COMPLETE PRINT				
APPLICABLE SPECIFICATIONS				
BPS 4168	TECHNICAL DATA AVAILABLE	1	GT	

REVISIONS	
LTB	DESCRIPTION



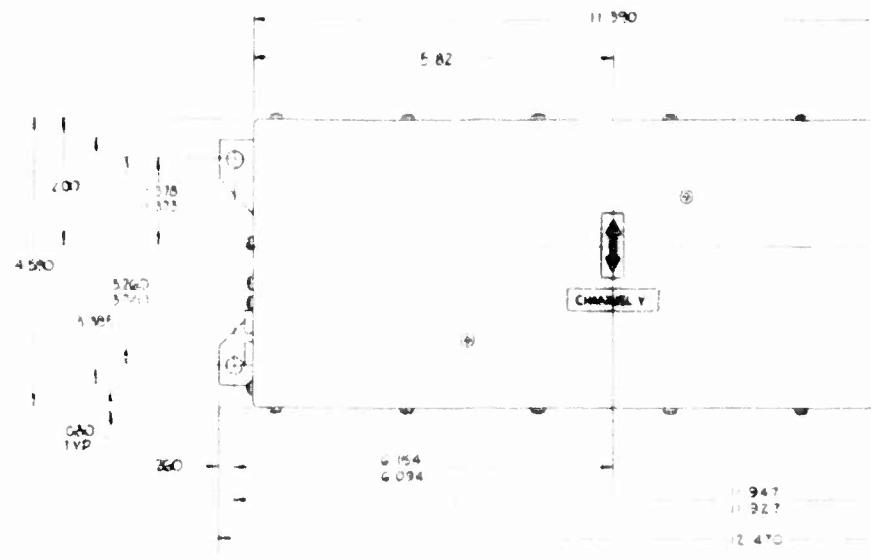
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best available copy.

QTY REQD	NO	FIND CODE IDENT	PART OR IDENTIFYING NO	NOMENCLATURE OR DESCRIPTION	MATERIAL OR NOTE	COMMERCIAL DESIGNATION	SPECIFICATION	DRAWING NO. 6176-300100	
								2	1

ITEM	DESCRIPTION	QTY REQD	NEXT ASY	APPLICATION	NEXT ASY	FINA L ASY	SUPERSEDES	SUPERSDED BY	SIZE CODE IDENT NO.	
									SIZE	CODE IDENT NO.
1	6176-300100 CRL II	1							D 80070	6176-300100

OUTLINE-ELECTRONICS
PACKAGE, CRL II
MESA

PULL AIR SYSTEMS - INC.
POST OFFICE BOX ONE - DEPTAL. 1000 - VILLE



LOG OF INSTRUMENT PROOF MASS
CHANNEL V

INSTRUMENT
PROOF MASS
CHANNEL Z

0.153
0.162
0.205
0.240

INSTRUMENT
PROOF MASS
CHANNEL X & Y

CHANNEL X

CHANNEL Y

INSTRUMENT
PROOF MASS
DELTAP ANALYSIS

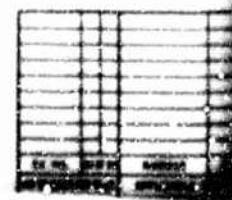
SECTION A

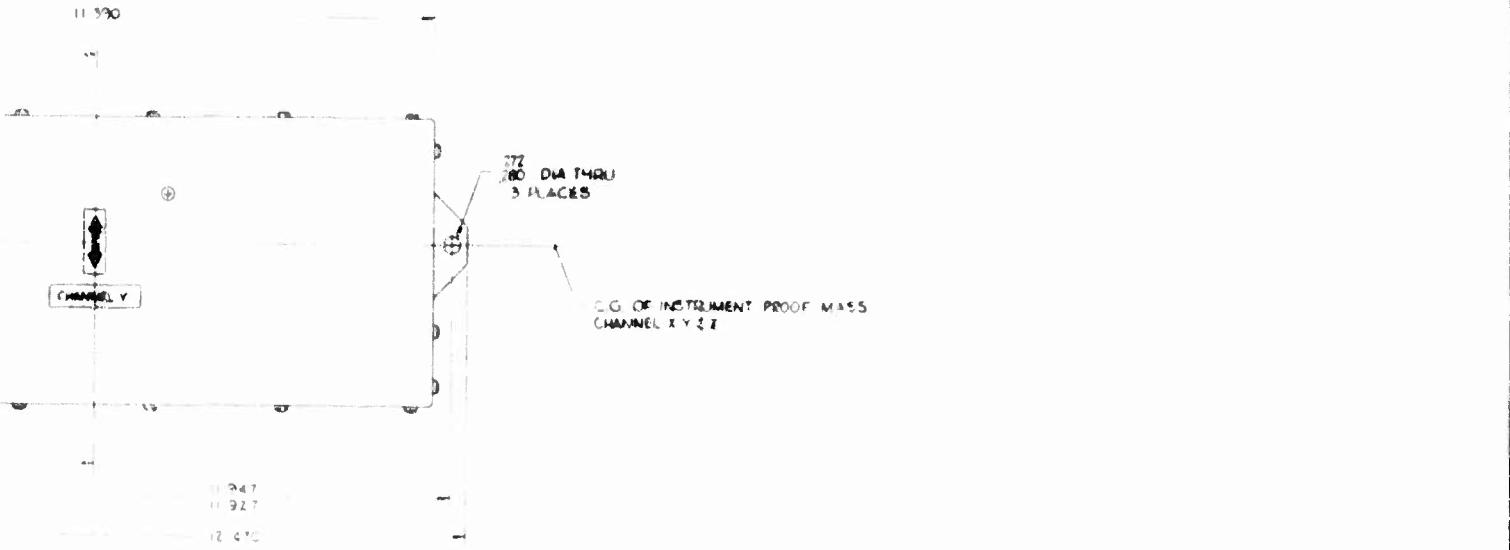
— V —
— F —

— V —

1. DIMENSIONS INDICATE SWING MAXIMUM CURVE OF UNIT, UNLESS OTHERWISE SPECIFIED.

NOTES



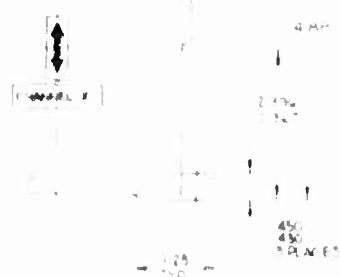


C.G. X INSTRUMENT PROOF MASS
CHANNEL X

C.G. OF INSTRUMENT PROOF MASS
CHANNEL X

(REF) IN NO. 1

CHANNEL X



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ED. 70	REV. D	NUMBER	APPLICATION	DATE	APL. NO.	REF. NO.	DATE	APL. NO.	REF. NO.
ED. 70	REV. D	NUMBER	APPLICATION	DATE	APL. NO.	REF. NO.	DATE	APL. NO.	REF. NO.

NAME, ADDRESS, CITY, STATE, ZIP CODE	TYPE, COLOR, PART OF INSTRUMENT IDENTIFYING NO.	DESCRIPTION OR SPECIFICATION	REVISION OR NUMBER	CHANGES	SPONTANEOUS CHANGES
PAGES LIST					
OUTLINE DRAWING, 3 AXIS ACCELEROMETER - MESA II					
DRAWING NO. 6172-300200					